CLAIMS

What is claimed is:

1. A method of optimizing production in a well, comprising:

operating a gas lift system in a wellbore;

gathering a plurality of production related parameters;

matching a well model with measured data obtained from the production related parameters to determine discrepancies; and

redesigning the gas lift system based on the discrepancies.

2. The method as recited in claim 1, wherein gathering comprises measuring the gas injection rate.

3. The method as recited in claim 1, wherein gathering comprises measuring the fluid production rate.

4. The method recited in claim 1, wherein gathering comprises obtaining a flowing gradient survey.

5. The method as recited in claim 1, wherein gathering comprises obtaining temperature data.

6. The method as recited in claim 1, wherein gathering comprises obtaining temperature data.

7. The method as recited in claim 6, wherein the temperature data is obtained via a distributed temperature sensing system.

8. The method as recited in claim 1, wherein gathering comprises obtaining surface parameter measurements.

9. The method recited in claim 1, wherein gathering comprises obtaining downhole parameter measurements.

10. The method as recited in claim 1, wherein gathering comprises obtaining episodic measurements.

11. The method as recited in claim 1, wherein gathering comprises measuring a tubing pressure.

12. The method as recited in claim 1, wherein gathering comprises measuring a tubing temperature.

13. The method as recited in claim 1, wherein gathering comprises measuring an injection pressure.

14. The method as recited in claim 1, wherein gathering comprises measuring an injection temperature.

15. The method as recited in claim 1, wherein gathering comprises utilizing a multiphase flow meter.

16. The method as recited in claim 1, wherein gathering comprises measuring a tubing pressure below a gas lift orifice.

17. The method as recited in claim 1, wherein gathering comprises measuring a casing pressure below a gas lift orifice.

18. The method as recited in claim 1, wherein gathering comprises measuring temperature via a slickline deployed distributed temperature sensing system.

19. The method recited in claim 1, further comprising initially selecting a candidate well by obtaining well test data.

20. The method as recited in claim 1, further comprising initially selecting a candidate well by obtaining gas lift monitoring data.

21. The method as recited in claim 1, further comprising initially selecting a candidate well by obtaining well history data.

22. The method as recited in claim 1, further comprising initially selecting a candidate well by obtaining completion specific data.

23. The method as recited in claim 1, further comprising validating any improvements in production following redesign of the gas lift system.

24. The method as recited in claim 1, wherein matching comprises analyzing inflow factors.

25. The method as recited in claim 1, wherein matching comprises analyzing outflow factors.

26. The method as recited in claim 1, wherein matching comprises analyzing surface factors.

27. The method as recited in claim 1, wherein redesigning comprises adjusting a temperature setting.

28. The method as recited in claim 1, wherein redesigning comprises adjusting a gas injection rate.

29. The method as recited in claim 1, wherein redesigning comprises changing a component of the gas lift system.

30. The method as recited in claim 1, wherein redesigning comprises correcting an inlet related limitation.

31. The method as recited in claim 1, wherein redesigning comprises correcting an outlet related limitation.

32. The method as recited in claim 1, wherein redesigning comprises correcting a downhole related limitation.

33. A system for optimizing production in a well, comprising:

a gas lift system positioned in the well;

a sensor system to sense a plurality of well related parameters; and

a well modeling module able to automatically compare a calculated model of the well to measured data based on the plurality of well related parameters to determine factors detrimentally affecting optimization of production from the well.

34. The system as recited in claim 33, wherein the sensor system monitors data in real-time.

35. The system as recited in claim 33, wherein the sensor system comprises a remote processor system.

36. The system as recited in claim 33, wherein the sensor system is configured to sense a quantity of injected gas.

37. The system as recited in claim 33, wherein the sensor system comprises a tubing pressure sensor and tubing temperature sensor.

38. The system as recited in claim 33, wherein the sensor system comprises an injection pressure sensor and an injection temperature sensor.

39. The system as recited in claim 33, further comprising a multiphase flow data sensor.

40. The system as recited in claim 33, further comprising an episodic sensor system.

41. The system as recited in claim 40, wherein the episodic sensor system is configured to obtain a flowing gradient survey.

42. The system as recited in claim 40, wherein the episodic sensor system is configured to obtain a distributed temperature profile.

43. A method of optimizing production from a gas lift system disposed in a well, comprising:

flowing a gas through the gas lift system;

obtaining measured data from a plurality of sensors positioned to sense production related parameters;

graphically plotting a gradient based on the measured data;

graphically plotting a model gradient; and

comparing the gradient and the model gradient to determine whether production can be optimized.

44. The method as recited in claim 43, further comprising optimizing production performance of the gas lift system.

45. The method as recited in claim 44, further comprising adjusting the gas lift system to optimize performance.

46. The method as recited in claim 45, wherein adjusting comprises correcting an inlet related limitation on production.

47. The method as recited in claim 45, wherein adjusting comprises correcting an outlet related limitation on production.

48. The method as recited in claim 45, wherein adjusting comprises correcting a downhole related limitation on production.

49. The method as recited in claim 45, wherein adjusting comprises adjusting a temperature setting.

50. The method as recited in claim 45, wherein adjusting comprises adjusting a gas injection rate.

51. The method as recited in claim 45, wherein adjusting comprises changing a component of the gas lift system.

52. The method as recited in claim 45, wherein adjusting comprises adjusting a choke size.

53. The method as recited in claim 45, wherein adjusting comprises adjusting a casing pressure.

54. The method as recited in claim 45, wherein adjusting comprises adjusting a separator operating pressure.

55. The method as recited in claim 45, wherein adjusting comprises removing a valve restriction.

56. The method as recited in claim 45, wherein adjusting comprises fixing a tubing hole.

57. The method as recited in claim 45, wherein adjusting comprises changing a valve spacing.